Breast cancer screening and migrants

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Breast cancer screening and migrants: exploring targeted messages for Moroccan migrant women in Brussels

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ABSTRACT

Objectives: This study explored views of Moroccan migrant women on barriers and facilitators to the organized breast cancer screening program in Brussels (Belgium), and the potential of targeted printed invitations to increase this population's attendance to the program.

Methods: We conducted one expert interview with the breast cancer screening program coordinator on current practices and challenges with regards to inviting Moroccan migrant women in Brussels for screening. Secondly, we held focus groups with Moroccan women aged 26–66. Sessions focused on perspectives on breast cancer screening and the existing generic program invitations. Directed content analysis of transcripts was based on the Health Belief Model. Alternative communication packages were developed based on barriers and suggestions from the focus groups. A second round of focus groups looked at the alternative communication packages and their potential to encourage Moroccan migrant women in Brussels to participate in the organized breast cancer screening program.

Results: Alternative packages were appreciated by some, but a number of adjustments did not catch participants' attention. Printed communication delivered by post does not appear to be the preferred means of communication to encourage breast cancer screening for Moroccan migrant women in Brussels, nor does it seem appropriate to address the barriers to screening found in this study.

Conclusions: The benefit of targeted postal invitation packages for Moroccan migrant women in Brussels seems limited for a variety of reasons. For future research, a large-scale study analyzing the topic in a cross-cultural perspective is warranted.

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Breast cancer screening; minority health; health behavior; health communication; qualitative research; content analysis

Background

Breast cancer (BC) is the most common cancer among women worldwide (GLOBOCAN 2014). Incidence is lower among Migrant and Ethnic Minorities (MEMs) (Arnold et al.

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2011; Donnelly et al. 2013), and they are less likely to use screening mammograms than natives (Kristiansen et al. 2012; Norredam, Nielsen, and Krasnik 2010; Schueler, Chu, and Smith-Bindman 2008). However, late-stage diagnosis is more frequent for MEMs, negatively affecting chances of survival (Arnold et al. 2011; Donnelly et al. 2013). Research reveals that Moroccan women in the Netherlands have particularly low screening rates (Hartman, van den Muijsenbergh, and Haneveld 2009; Vermeer and Van den Muijsenbergh 2010), as well as Arab women in Israel (Baron-Epel, Friedman, and Lernau 2009; Soskolne, Marie, and Manor 2007).

Breast cancer screening in Brussels

In the Brussels Region (Belgium), mammography-use of women with non-European nationality is lower (53,6%) than for Belgian (68,2%) and other European women (73,4%) (Deguerry, Mazina, and De Spiegelaere 2012). A Breast Cancer Screening (BCS) program was established in 2000, and the non-profit organization Brumammo was founded to ensure implementation (Deguerry, Mazina, and De Spiegelaere 2012). Before the program kicked off, 47% of the population in Brussels underwent opportunistic and diagnostic screening – i.e. asking the general practitioner (GP) or gynecologist for a test, or being offered one. Brumammo aimed to change this practice to organized screening with a Mammotest (MT); presumed to be a more efficient screening mammogram. Since 2003, the BCS program in Brussels uses generic invitation packages for women aged 50–69, who are registered in the system of obligatory sickness- and invalidity insurance. This package is sent out biennially and consists of a letter, an information brochure and a list of licensed mammographic units (Deguerry, Mazina, and De Spiegelaere 2012). In 2006–2007 about 54% of eligible women engaged in BCS (opportunistic and organized) (IMA 2010). A lack of trust in the exam, the uncomfortable nature of the test, embarrassment, the possibility of having a male technician, not wanting to know if one is ill, and believing that it is unnecessary to get screened if nothing feels wrong hindered screening uptake (Deguerry, Mazina, and De Spiegelaere 2012; Plasman 2012). Given the small increase in screening since the program's launch, the invitation seems to have limited impact on BCS participation in general (Deguerry, Mazina, and De Spiegelaere 2012). Information and sensitizing actions taking into account Brussels' specifics (bilingual, multicultural, poverty) are thought to be necessary to increase screening coverage (Deguerry, Mazina, and De Spiegelaere 2012).

Strategic health communication

Health communication materials are often designed for the general population or a demographic subgroup. This does not take into account characteristics that vary between individuals and affect their health behavior (Kreuter, Strecher, and Glassman 1999). Targeted communication then aims to reach a specific subgroup of the population based on shared demographic characteristics. The content of the material is guided by specific beliefs, needs, skills, and concerns of the audience (Kreuter, Strecher, and Glassman 1999), recognizing the importance of other cultural issues that influence how people respond to health communication (e.g. values, norms, expectations, language skills, motivations, etc.) (Kreps and Sparks 2008). Theoretical models, such as the Health Belief Model (HBM), try to

explain factors that influence health related behavior, and can therefore be used to inform the design of targeted health communication. Research has shown culturally-sensitive health communication to be effective in reaching MEMs (Cohen and Azaiza 2010; Kreuter et al. 2005, 2010; Perez et al. 2014).

Breast cancer screening in Moroccan migrant women

The HBM states that people are more likely to engage in screening if they believe they are susceptible to the disease in question, that the disease could have serious consequences, that a specific action would help to reduce susceptibility to or severity of the disease, and that the expected benefits of screening outweigh the barriers (Champion and Skinner 2008; Hochbaum 1958). These beliefs are influenced by socio-demographic and socio-psychological factors. Perceived self-efficacy and health motivation are also considered to be vital to the equation. Internal (e.g. symptoms) and external (e.g. posters, diseased friend) cues to action can additionally affect the behavioral outcome. HBM components differ across MEMs, causing mammogram-promotion interventions to focus on them with effects on outcome measures (Champion and Skinner 2008; Jibaja-Weiss et al. 2003; Maxwell et al. 2003).

Purpose

Although authors emphasize the importance of studies on beliefs and attitudes that influence mammography-use for various groups (Baron-Epel, Friedman, and Lernau 2009), little is known about such beliefs and attitudes for MEMs in the European Union (EU). Consequently, much remains to be learned about how accessibility to organized BCS can be increased. Moroccan women are an important MEM in Brussels (Belgium) (BISA 2014), and BCS rates for Moroccan women in the Netherlands are very low (Hartman, van den Muijsenbergh, and Haneveld 2009; Vermeer and Van den Muijsenbergh 2010). This incites Belgian research on this population. Studies on targeted messaging for MEMs have not focused on invitations for BCS in the EU so far. The purpose of this study is to reveal hindering and facilitating factors related to BCS with a MT for Moroccan migrant women in Brussels from a users' perspective, in order to develop targeted communication aimed at increasing their BCS uptake and explore its potential for the study population. Although there is ample discussion on the benefits and harms of organized general BCS programs, this discussion goes beyond the scope of our study and will not be addressed throughout this paper.

Methods

This study is based on data from one expert interview and five focus groups ($n = 32$).

Expert interview: current breast cancer screening invitation practices and challenges

We conducted a semi-structured explorative face-to-face interview with the Brumammo coordinator to understand current practices and challenges for this organization. The

coordinator gave verbal consent for the interview before the start of the inquiry. The interview was audio-recorded and transcribed, with a summarized description of the conversation reported below.

Focus groups: beliefs, behaviors and modifying factors of Moroccan migrant women

Three focus groups (FGs) of 90 min were held with Moroccan (and one Algerian) women in March 2014 in two primary health care centers and one community center in Brussels. Criteria for inclusion were: female, living in Brussels, born in Morocco, acceptable level of French, health insurance coverage, and aged 40–69. Participants were recruited through purposive sampling. They were approached by social workers from the primary health care and community center for the first and second focus group, and by a physiotherapist from a second healthcare center for the third. Women eligible for the study were contacted through a phone call or addressed about the study at the health care or community center. The age range originally chosen for inclusion was bigger than the one targeted by the screening program (50–69), because exploratory talks with care providers informed us of the difficulty recruiting older Moroccan migrant women due to lack of knowledge of French and scarce contact with health care. The lower end of the age criterion (40) was further reduced after gatekeepers expressed the difficulty for them to recruit women within the 40–69 age range in due time. Therefore, our final participant group was 26–66 years old. Participants were verbally informed of the purpose of the study, procedures, and aim to publish the results before the start of the discussions, and received the same information in writing. An informed consent form was signed by all participants prior to the discussions. All participants completed a survey gathering age, marital status, number of children, educational level, professional status, country of birth and age upon arrival in Belgium.

We developed a questioning route including HBM constructs and study objectives (Table 1). The focus group moderator was a female researcher, and a gatekeeper (French teacher for the first, social worker for the second, and a physiotherapist for the third) was present in case of difficulties. Focus groups were conducted in French. This choice was made for feasibility reasons in view of the time frame provided for this study. The gatekeeper present for each focus group was allowed to assist in case of language difficulties, but this was rarely necessary. The purpose was to solicit beliefs about BC(S), perceived susceptibility, severity, individual BCS behavior and perceptions of the currently used invitation. The primary researcher analyzed session transcriptions using HBM components, allowing new concepts to come up (Hsieh and Shannon 2005). She drafted a codebook by assigning codes to text fragments through an iterative process. The transcripts with codes assigned were reviewed by two other researchers and discussed before a final codebook was developed. No qualitative data analysis software was used. Subsequently, we drew up alternative printed communication based on findings.

A second round of FGs of approximately one hour was conducted in April 2014 on the same locations with participants from the first round, who indicated they were interested in participating in a second discussion at the end of the first focus group (Fern 2001). Four alternative communications were presented and discussed. Questions were based on health communication studies' pretesting materials (general perception, comprehension, acceptance, call to action, attractiveness, involvement, preferences and value) (AED

Table 1. Focus group questioning route.

Question	HBM construct and other
What is the first thing you think of when you hear the words 'breast cancer screening'? What is BCS?	Knowledge, individual beliefs
Which of you remembers ever getting a letter about BCS? Do you remember what it said? What did you think about it? Was the message convincing? Why (not)?	Cues to action
Who went to one of those screenings? What was it like? Could you describe the process? Do you know anyone (else) that did it?	Experience with screening
Who took the initiative for the screening?	Cues to action
Why didn't you or wouldn't you participate in a BCS program that uses a type of mammogram?	Individual beliefs: perceived barriers
Why did you or would you go to a BCS procedure using a type of mammogram?	Individual beliefs: perceived benefits
If other Moroccan women in Brussels where asked the same questions, what do you think they would say?	Individual beliefs: perceived barriers & benefits
If you got the opportunity to advise people that are writing invitation packages for Moroccan women in Brussels, what would you tell them?	Cues to action
If my goal is to adapt invitation packages for the BCS program to Moroccan women in Brussels, is there anything we missed in order for me to be able to do so?	Cues to action
All things that have been said in our conversation considered, what would you say is most important?	Individual beliefs, cues to action, perceived barriers, perceived benefits

2009; Alive & Thrive 2012; NCI 2008). We adapted communications based on the following principles: (i) identifying and addressing barriers; (ii) developing communication strategies that are sensitive to language use and information requirements; and (iii) working with cultural or religious values (Netto et al. 2010). We applied additional suggestions for change that emerged from the FGs. Lay-out adjustments were based on the U.S. National Cancer Institute (NCI) guide on 'Developing Effective Print Materials for Low-Literate Readers' and the Pink Book on 'Making Health Communication Programs Work' (NCI 2003, 2008). A description and visual representation of all communications is provided in Table 2. Participants shared perceptions on each package. Directed content analysis was led by themes in the questioning route, focusing on both content, difficulty, practical matters and the lay-out of the packages.

Ethics

The main researcher was based in Tinico, Switzerland and affiliated with Maastricht University, Netherlands, during the course of this study. Our research was exempt from IRB approval in Tinico and at Maastricht University. The main reason is that this type of study is not perceived as threatening or risky, i.e. harmful to participants in any way. The team followed the Helsinki Declaration of ethical principles for research.

Results

The current breast cancer screening invitation: practices and challenges

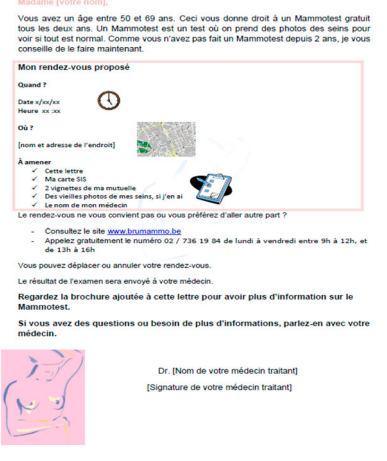
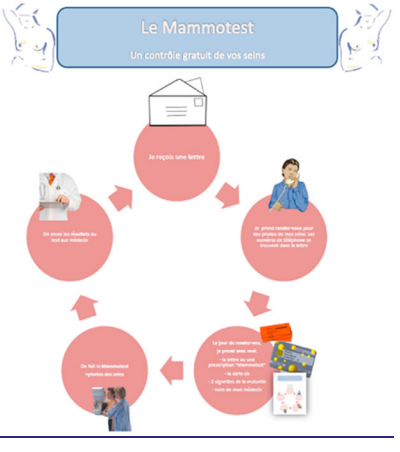
The expert interview revealed that Brumammo receives information about women eligible for screening from the 'Crossroads Bank for Social Security' (Kruispuntbank Sociale

Table 2. Invitation packages: descriptions.

Invitation package	Description	Visual
Original Package	Generic invitation letter and brochure from Bruammo in French and Dutch. The letter states that women aged 50–69 have the right to get a MT carried out for free and lists three steps to screening.	
Alternative Package 1	Currently used generic invitation package with standard Arabic translation, addressing limited French skills.	
Alternative Package 2	Currently used generic package in Flanders (northern region of Belgium) with an Arabic translation produced for didactic reasons (available online, never sent by mail). The letter gives information on a planned appointment, which the addressee can cancel or change.	

(*Continued*)

Table 2. Continued.

Invitation package	Description	Visual
Alternative Package 3	Text shortened and bullet pointed, font size enlarged and parts of the text bold. Pictograms illustrate the process to screening. The adaptations address literacy issues. It states that women can ask for a female physician to do the MT. The letter was developed as if the GP sent it, to respond to the role of the GP for Moroccan women. The brochure includes a testimony instead of the original explanation on how the MT works.	
Alternative Package 4	Similar to the third, following the Flemish screening system with a planned appointment.	
Alternative Package 5	Addresses more severe literacy issues. Consists of a graphic illustration of the process to go through from receiving the invitation to getting the results.	

Zekerheid – KSZ) every three months. Country of birth is not included in the information received by the organization. The language the invitation is sent in, is determined by the dominant linguistic role in the city part where the person lives. When a woman gets a MT, her language preference is asked for future mailings. According to the coordinator, the invitation package is legally required to be published in French and Dutch. Translating into other languages is regarded as impractical, as many language groups exist in Brussels. The invitation is not bound to any other legal requirements. The Brumammo coordinator works with a board of directors, including stakeholders. When Brumammo prepares an informative brochure to be sent out with the invitation letter, the board discusses it. The brochure is also sent to the organizers of the Walloon program (Wallonia is one of the other two administrative Belgian regions), and advice is obtained from a non-profit organization that focuses on health information. The coordinator expressed some concern about the standardized system for organized BCS, however. A more tailored approach to screening taking into account personal risk factors (e.g. family history) is thought to be more accurate and up-to-date. This personalized approach would be more difficult for doctors to communicate to patients, however.

The coordinator highlighted that the only women the organization can be sure were not reached by the postal invitation package are those that can be identified through returned mail as a result of incorrect addresses (about 4% of women eligible for screening in Brussels). 'Intermutualistisch Agentschap' (IMA; Overarching health insurance agency) and 'Observatorium voor Gezondheid en Welzijn Brussel-Hoofdstad' (Observatory for Health and Wellbeing Brussels-Capital) evaluate the screening program regularly. According to the Brumammo-coordinator, these organizations' analyses showed that of a variety of parameters, only previous contact with a GP or gynecologist predicted screening for women in Brussels (report referred to: Deguerry, Mazina, and De Spiegelaere 2012). The coordinator also believes that the population in Brussels has specific characteristics, such as high mobility, a different linguistic background and often low socio-economic status, making its efficacy for all subgroups somewhat questionable. An approach focusing on GPs and the use of the electronic medical file is considered an important route to be explored in the future.

Beliefs, behaviors and modifying factors of Moroccan women

Thirty-two women attended the FGs. Sessions included eleven, fourteen and seven women respectively. The mean age of participants was 45 years, the length of stay in Belgium ranged from 5 to 47 years, with a mean of 22.7. Most women were uneducated or had low educational levels, and six of them were employed.

As illustrated in Table 3, FG discussions revealed that knowledge on BCS was limited, especially regarding differences between organized and opportunistic screening. This stemmed from experiences with breast examination. Participants believed that generally, motivation, fatalism, and evasive attitudes ('not wanting to know') are the kind of personality traits that influence one's screening behavior.

Statements illustrate that respondents think BC is a serious disease, to which they are susceptible. Perceived benefits of BCS are reassurance and the expected effects it would have on the course of BC. Respondents emphasized the preventive nature of screening when sharing perceptions on BCS using words like 'security', 'control', and 'necessity',

Table 3. Focus group results.

Theme	Illustrative Quote
Knowledge	'They raise your hand, put your breasts in the machine and do the mammography. And after they give you the result: it's negative or positive.' (FG1, age 60) 'Excuse me, for the Mammotest, is it the gynecologist that does that?' (FG1, age 36) 'It's from 40 years I think' (FG1, age 36)
Experiences	'I have never received a letter … but I get regular check-ups.' (FG2, age 49) 'I did it. Because I fell. I was 20. […] I went for reassurance.' (FG2, age 56)
Socio-psychological modifying factors: Personality (fatalism, evasiveness, motivation)	'The doctors […] don't reduce mortality. […] … if it's there it's there.' (FG2, age 58) '"if I have the disease, I will do this and I will have to do this", and sometimes we just don't care for that, you see?' (FG2, age 58) 'Me I also think […] it depends on every person's motivation.' (FG3, age 40)
Perceived threat	'A lot of women are dead because of breast cancer.' (FG1, age 36) 'There are 5 diseases that really scare: diabetes, cancer, the heart, cholesterol and thrombosis.' (FG2, age 58)
Expected benefits	'To be relieved, if we don't have anything.' (FG2, age 50) 'To not give the time to the disease to grow.' (FG2, age 51)
Expected barriers (embarrassment, pain, fear, language, literacy, male physicians)	'I think it's a bit embarrassing as well … to undress oneself.' (FG3, age 40) 'It hurt so bad that I told myself "I'm not having a second one"' (FG2, age 56) 'It's like they say that when you don't have a toothache, at the dentist's he will find a cavity … cancer is the same thing.' (FG2, age 62) 'The first wave of immigrants from the 60s in Belgium, those are women that come from villages … where school didn't exist. So … they're not lettered.' (FG3, age 40) 'the doctor, it has to be a woman.' (FG3, age 50)
Perceptions	'It's … preventing, before it happens … it's securing.' (FG1, age 64) 'It's obligatory for our health' (FG2, age 49) 'And cancer doesn't warn you, you know. You can be mobile and not feel anything, and when you go to the doctor there's a lump, there's a tumor. It's because of that that you do a mammography and get an invitation.' (FG1, age 64)
Perceived self-efficacy	'I have to be able to call on someone […] to know a bit more about it.' (FG1, 60)
Modifying factors: external cues to action (physicians, mass media, contacts)	'if their GP […] ignites in them the need to be concerned about their health, and talk about the danger of that disease I'm sure they will go do it without a problem.' (FG 3, age 40) 'The most convincing I think it's the doctor. It's him that talks to us in all ways to convince us.' (FG2, age 50) 'I had a mammography thanks to my husband who said – he saw an emission on TV – "do it, you don't have anything to lose".' (FG2, age 62) 'Back in the day when my friends have gotten cancer […] we were all anxious, we wanted to get a Mammotest as well.' (FG 3, age 40) 'When I hear the publicity I have to do it. It really speaks to me.' (FG3, age 40)
Modifying factors: internal cues to action	'I look at myself every day, I feel left, right, and I felt something and I said to myself "what is that, brrf". I didn't know so I took an appointment […]' (FG1, age 60)
Invitation package	'I haven't received it (cfr. Invitation), but it's the GP that recommends it. When we have the flu he says "ah madam, you have reached the age of 50, here you go the paper, you have to do"-not a Mammotest, but a mammography.' (FG2, age 58) 'there are people that don't give any importance to the invitation.'

(*Continued*)

Table 3. Continued.

Theme	Illustrative Quote
	(FG3, age 40) 'To remind us.' (FG2, age 54)
Suggestions for change	'Announcements in schools. […] a lot of Moroccans go bring their children. They will look at that. There are parents that talk amongst them, and there are some that don't speak French, so the other could explain.' (FG3, age 43) 'The organization should orient itself, not directly to the patient, but to medical centers, to do activities about it […] if the organization reaches our doctors, even if you don't come when I invite you … you will come to the doctor at some point […], who will talk to you […] it will have more weight than sending a letter that ends up in the trash.' (FG3, age 40) 'We can choose a woman.' (FG3, age 40) 'Testimonies like a person that has gotten screened, that explains.' (FG2, age 47)

and even 'obligation'. The possibility of having BC without knowing is said to motivate screening. However, many participants do not want to get screened when nothing feels wrong. Those aged older than 50 remembered the system in their home country as well, where getting screened for BC is more difficult and expensive. Several barriers to screening were mentioned, including: embarrassment, a male physician may be present during the examination, the possibility of pain caused by the test, and fear. Fear was said to relate to going to a doctor, the medical imaging equipment, the result of the test, or the fear to evoke something by getting screened.

Some participants indicated they did not know what the invitations were for or how to take part in the BCS program without asking a physician, seemingly indicating low self-efficacy regarding BCS. Someone or something to push towards screening was considered to be highly motivating, however. The fact that the test is free is also considered encouraging. Symptoms and personal motivation are thought to be the most obvious pushes towards screening. The invitation letter should work to motivate as well, but many participants claim to have never received it or had never heard about it. The general opinion on the purpose of an invitation was that it could be a reminder. The added brochure was deemed useful. Regardless, the invitation was not believed to be sufficient to encourage screening. Some thought Arabic translations would help, pointing out language difficulties. Others found that the level of literacy required was an important limitation of the invitation.

Suggestions to change the package were to state that one can choose a female physician to carry out the test, and to include a testimony from a woman that got screened or has BC.

Healthcare providers are said to be important to motivate screening. The GP is the go-to person for information and encourages screening, and gynecologists are perceived as 'women's doctors'. Family contacts or friends encouraging BCS, or who were diagnosed with BC themselves, are motivators as well. A large number of participants heard about BCS on TV, mostly on Moroccan channels. They mentioned this as a convincing means of communication to motivate screening. The participants made other suggestions on how low literate women might be reached in order to motivate them to attend screening (e.g. radio-ads, message boards in schools read by other parents, a GP reminder during a consultation). Regardless, further efforts would be required to reach women from what they described as 'more traditional' Berber families, whose daily lives are situated 'inside the house'.

Alternative invitation packages

Seven women attended the second round of FGs (two in the first FG, five in the second FG) were they gave feedback on four altered BCS invitation packages (Table 2). Many participants did not have problems understanding package 1 and 2, but suspected that others could because some sentences or words were difficult. Regardless, they felt the point of the message came across. Difficult sections and low literacy were not considered issues, as there is always help around to read.

> 'We always find someone … these days […] the kids they do for their parents. […] there is always help.' (FG1, age 40)

Packages 3 and 4 were not thought to be more or less difficult to understand. Not all participants noticed differences in the screening process implied through these packages. The fact that these would be sent by their personal GP rather than an organization was not mentioned.

Arabic messages were appreciated, and some were only able to understood these as opposed to French invites. However, they are not recommended for all Moroccan women in Brussels by our participants:

> 'When we see Arabic […] it warms the heart. It shows you thought of us anyway.' (FG1, age 40)

> 'But I think it's not the majority that read Arabic either, written Arabic is different than Arabic in life.' (FG1, age 48)

Color schemes using pink were found appealing, but some felt that it does not reflect the severity of BC. Big titles were liked because they quickly show what sections of text are about. Long texts and small fonts were disliked (package 2). Larger font size and summary-like approaches were appreciated (packages 3 and 4). One participant highlighted the testimony on how the MT works in the brochure. Participants liked the pictograms utilized in the third and fourth package, and found these illustrated the context of the message.

Participants did not like the fact that a male practitioner could be present during the MT (packages 1 and 2). The fact that package 3 addressed this issue was unclear until the moderator pointed it out. Experiences from peers on this point may also be thought of as more credible.

> 'Well yeah […] It encourages. If we know that if we ask for a woman […] But it depends a little on what we hear on the outside. If we hear from others that already went that say "no it's not true there are no women" […].' (FG1, age 40)

The fifth package targeting low literate women was appreciated, but the starting point of the BCS cycle as well as the exact meaning of the pictograms was sometimes misinterpreted.

When asked whether the adjusted messages (packages 3 and 4 in particular) had added value, participants did not seem entirely convinced:

> '[…] the big characters […] it's bold, it shows very well from a far. […] it has everything but it's shorter. […] everything one has to do, everything that's interesting to see. […] No, not more than another, it's the same message.' (FG1, 40)

None of the packages was liked best across participants. How women's screening behavior could be influenced after reading these targeted messages was considered uncertain. Participants prefer to be informed about and invited to the BCS program by their GP.

Discussion

Many findings of this study touched upon previous research. Kreps and Sparks (2008) stated that health literacy difficulties often found in MEMs cause confusion on early detection guidelines. Our results also showed a lack of knowledge on the BCS program in Brussels, which may in part be related to literacy levels.

Embarrassment and fear were previously identified as barriers to BCS among MEM women and the general population in parts of Brussels (Kristiansen et al. 2014; Peek and Han 2004; Plasman 2012; Schueler, Chu, and Smith-Bindman 2008). The culture-specificity of those barriers is debatable, and further cross-cultural comparisons would be needed to be sure of this.

Limitations of printed mail packages in order to increase organized screening attendance were previously suggested for the general population in Brussels (Deguerry, Mazina, and De Spiegelaere 2012). As the Brumammo-coordinator stated, only returned mail is a source of information regarding women who did not actually get the invitation package delivered to their home in Brussels. Our FG results add to this what was equally suggested in a previous Belgian study on BCS among the general population, and a Dutch study on cervical cancer screening among Turkish migrants. The claim made in those pieces of research is that, aside from women not reached through mail, not all women who do receive a letter of invitation in their mailbox identify it as part of a screening program (Hartman, van den Muijsenbergh, and Haneveld 2009; Plasman 2012). In this way, the reach postal invitation packages have is actually smaller than the number of women who receive the postal package.

Other research suggests that BCS is opportunistic in most Arab countries, explaining the limited role of organized screening for Moroccan women (Donnelly et al. 2013). Additionally, gender roles in Morocco often imply that the public space is associated with the outside/exterior, and private space with the inside/interior (Sadiqi 2003). The private space is the home where women live and men exercise their power. Women can be in some public spaces, but cannot function there in the same way men do. As pointed out by our participants, getting screened is therefore not self-evident for particular Moroccan migrant women from more traditional families or communities.

Limited knowledge of French and low literacy are other reasons why post packages might not work for Moroccan women in Brussels, confirming previous studies on BCS among the general population in Brussels, MEM women in other countries, and cervical cancer screening among Turks in the Netherlands (Hartman, van den Muijsenbergh, and Haneveld 2009; Kristiansen et al. 2014; Peek and Han 2004; Plasman 2012; Schueler, Chu, and Smith-Bindman 2008). The GP and gynecologist, TV-advertisements, contacts that got screened or have BC, or family members that encourage BCS are external cues to action for our participants. This is consistent with American and Israeli findings on GP-recommendations for mammography screening (Maxwell, Bastani, and Warda 1998; Peek and Han 2004; Schueler, Chu, and Smith-Bindman 2008; Soskolne, Marie, and Manor 2007), but also with findings on the role of television and mouth-to-mouth

communication for the general population in Brussels, the importance of TV and radio for Turkish women in the Netherlands, and research results on Arab women in general (Donnelly et al. 2013; Hartman, van den Muijsenbergh, and Haneveld 2009; Plasman 2012). Culturally tailored mass media campaigns were considered important in American research (Peek and Han 2004). Other culturally tailored interventions found to be effective to increase mammography-screening uptake in research were educational materials (e.g. classroom instruction and videos) and community-trained lay health advisors covering a wide range of themes such as general information about cancer, but also about mammograms and the importance of screening (Goldsmith and Sisneros 1996). These could be interesting routes for intervention studies in our study population as well.

The FG results demonstrate salience of HBM constructs knowledge, age, what were believed to be personality traits (motivation, fatalism, and evasive attitudes), perceived susceptibility, benefits, barriers, self-efficacy and cues to action (symptoms, family, acquaintances, physicians, etc.). A quantitative study from Israel highlights the importance of the four latter components (Soskolne, Marie, and Manor 2007). Importantly, components such as knowledge, susceptibility and severity perceptions, self-efficacy, and benefits versus costs, are not unique to the HBM. The following models used in research on breast cancer screening include these in some way as well: The Health Behavior Framework (Tu et al. 2008), the Theory of Reasoned Action (Fishbein and Ajzen 2010; Thompson et al. 1996), the Protection Motivation Theory (Rogers 1983), the Subjective Expected Utility Theory (Ronis 1992), and the Adherence Model which incorporates most of the abovementioned models (Maxwell, Bastani, and Warda 1998). In this sense, these results from the FG analysis also correspond to other theoretical models of health behavior.

A questionnaire used by Maxwell, Bastani, and Warda (1998) to examine mammography utilization and attitudes among Korean-American women based on the Adherence Model included measures of past breast cancer screening in addition to theoretical constructs ('experience' in this paper). In our findings, previous experiences with mammography screening influence knowledge and beliefs about BC(S), perceived self-efficacy, and barriers and benefits.

Country of birth as it came up in our findings was a reference frame for FG participants that moved to Belgium as adults. Where host country BCS practices are different than those in the country of birth, discrepancies may arise between the behavior intended by the BCS program and the actual behavior. We and other authors believe that several HBM-themes may be affected by culture in a broader sense than country of birth (of Arab and/or migrant women) (Kristiansen et al. 2014; Markus and Kitayama 1991; Peek and Han 2004; Sadiqi 2003; Schueler, Chu, and Smith-Bindman 2008). Authors previously raised the concern that, despite its repeated use in all kinds of study populations, the HBM is not well adjusted to study health behavior in all groups, as socio-cultural components or differences are missing from it (Poss 2001; Soskolne, Marie, and Manor 2007). This criticism is not unique to the HBM (Ashing-Giwa 1999; Rajaram and Rashidi 1998). Rajaram and Rashidi (1998) also note that the HBM as well as other theoretical models of health behavior tend to view individual risk perception as independent of one's social and cultural context, and that differences in risk perception flowing from race, gender, and social class are generally not well addressed. These authors suggest that comparing cultural explanatory models for breast cancer screening of the female group studied with those of

providers may have the potential to uncover substantial differences that can be addressed to adjust communications better. Results from our study and previous research leads us to believe that theoretical frameworks that aim to explain specific health behaviors (e.g. cancer screening) in minority populations should not be studied in isolation, but that it would pay off to take a step back and see the bigger picture of forces that influence one's health beliefs prior to their behavioral manifestations.

Limitations

The FG participants do not represent the large diversity of the target population: since mostly health-oriented organizations recruited participants, they are more likely to have a GP and/or discuss health-related issues (Chiu and Knight 1999). Nevertheless, participants shared perceptions of all Moroccan migrant women's issues. Secondly, many women knew each other, which may have led to fear of sharing or allow more contributions from specific members (Fern 2001). However, within this tight-knit community it is practically unfeasible to recruit only women that do not know anyone else in the focus group from the same country origin through community organizations in the same city. For some women, this actually appeared to facilitate their contribution to the discussion, as they felt comfortable with each other. Additionally, gatekeepers contributed to the flow of the discussions to some extent. However, they did not have a distorting influence and, more importantly, they were helpful to overcome slight limitations resulting from the use of French during the focus groups. They were more knowledgeable of the participants' particular living conditions than the focus group moderator, which helped on-site understanding of some participant contributions to the discussions. Nevertheless, they were not official interpreters, nor were all of them fluent in Arabic. Some participants may therefore have been more hesitant to contribute to the discussions at some points when they did not know how to express their opinions, experiences, or beliefs in French. Fourth, the number of participants (seven) in the second focus group round was very small. Regardless, these women gave important input for our exploratory purposes. This led us to believe it would be useful to repeat this exercise with newly recruited participants in future research to get a better view of the adjusted packages' value. Also, a number of these alternative invitations imply seemingly feasible organizational changes. However, their actual possibility was not verified. Finally, directed content analysis was applied, implying that data is approached with a bias, as researchers might be more inclined to find evidence that supports a theory (Hsieh and Shannon 2005). Although some constructs were fairly easily identifiable through our data, we also found evidence that did not (only) fit the theoretical model used, as discussed above.

Conclusions

We examined and reported on modifying factors, beliefs, behavior and cues to action to BCS perceived by Moroccan migrant women in Brussels, and explored the role targeted printed invitations could have for them. Many focus group members did not notice the modifications that were made to the invitations in order to make them more culturally appropriate. Overall, other communication channels are preferred over postal packages. Solely using printed communications has its limits within this population due to literacy, linguistic issues and behavioral characteristics.

This was the first study to focus on accessibility to BCS for MEM members in Belgium, as well as on the role of targeted health communication. It adds to the limited research base on health communication in Europe.

Administrative data on BCS attendance by country of birth is necessary to properly identify groups with accessibility issues. Cooperating with an organization specialized in cancer prevention and treatment among Moroccans may be fruitful to lift barriers to the BCS program in Brussels for Moroccan migrant women. The results of this study could also be indicative for other health communication activities within similar target groups (e.g. invitations for other cancer types, vaccination programs).

In future research, messages could be tested with other women to assess the potential of targeted communication for screening uptake. In order to identify culture-specific themes for Moroccan migrant women in Brussels, other population groups must be included in research to allow comparisons. Moreover, we suggest developing a survey in order to quantitatively analyze the topic and to further explore it in a cross-cultural perspective.

As the HBM and other health behavior theories have limitations for research on minority groups' health behavior, we furthermore advise looking into how these could be expanded, adjusted and combined for studies on health behavior of MEMs.

At a higher level, European recommendations and practice should acknowledge that a 'one size fits all'-approach to communicating about BCS might be inappropriate for countries in the EU, which are becoming increasingly multicultural. Member states should assess whether screening rates show accessibility issues for some groups, research what hinders screening, and test targeted solutions that address those issues.

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